Clinical Section

*Pyelonephritis of Pregnancy

Causative Factors and Urological Treatment

By

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The main factor in the causation of this condition is the fact that pelvic and ureteral over-distention, or dilatation, exists in all pregnant women. That urinary stasis occurred was first brought out by Cruvelhier in autopsies on pregnant women. He found the ureter dilated in these cases more often on the right. His findings were criticized by some because it was largely autopsy material. Seng found that dilatation of the right ureter occurred in 100% of pregnant women, while the left was involved in two-thirds of these patients. This dilatation commences as early as the sixth week in multiparae, and the ninth week in primiparae, reaching its maximum in the twenty-second to the twenty-fourth week. This is describing the so-called normal physiological dilatation, not the infected ones.

The characteristic change in the ureters in pregnancy is well known. Dilatation of the ureter occurs in the middle and upper third, and is accompanied by a corresponding lengthening of the tube, in addition, the renal pelvic enlargement places the uretero-pelvic junction lower towards the bladder. The result is the ureter is too long. This excess length forms an arched curve away from the spine, and these ureters later show kinking at the pelvic brim and upper third.

The post-partum kidney necessarily is as definite an entity as the kidney during pregnancy. Cystoscopic and pyelographic evidence show that immediately after delivery atony of the pelvic and ureteral musculature exists. The only difference between the post-partum picture and the pregnant one, is that here we are dealing with regressive changes which possibly are comparable to the involution of the uterus. The rate of these regressive changes depends, of course, upon the degree and duration of the over-distention. It has also been shown that it depends somewhat in multiparas on the frequency of the occurrence of the pregnancies, since recovery of the muscle tone in the pelvis and ureter has not taken place before obstruction is again produced by the gravid uterus.

* Paper read at Post-Graduate Course, Manitoba Medical College, February, 1937.

Cause of Dilatation.

That the exact causative factor for this upper urinary tract stasis is in doubt, is amply shown by the number of theories advanced, and the universal acceptance of no single one. Pressure and weight of the gravid uterus is most frequently suggested, but against this you will remember that the dilatation starts in from the sixth to the ninth week, long before one would expect the uterus to be large enough to exert sufficient pressure.

Hyperplastic changes in the lower ureter and trigone of the bladder and so narrowing of the ureter, has been found to be constant by several investigators. Seng emphasizes the marked increase in vascularity of the uterus and adnexa, which occurs early in pregnancy, and which may well produce pressure changes in the portion of the ureter passing through this area. Others call attention to the congestion and oedema of the mucous membrane of the trigone and lower ureters. Another factor which must be considered, especially as it explains in part the predominance of right sided dilatation and pyelonephritis, is the development of an angulation of the right ureter at the distal end of its juxtovesical portion, as the result of the common dextrorotation of the gravid uterus, and the firm attachment of the trigone to its cervical portion; while, on the other hand, the same process predisposes to the stretching of the left ureter.

The latest theory advanced for the atonicity and dilatation of the upper urinary tract is the fact that it is now well known that women in the pregnant state have a definite increase in the bile-acid content of the blood. It has been shown experimentally by several observers that bile salts have a depressing effect on the muscles of the uterus and small intestine; while Hofbauer showed that they decreased the amplitude and frequency of the contractions of the muscles of the ureter and kidney pelvis.

I think it is not unreasonable to believe that this upper urinary tract stasis or dilatation is due to a combination of factors, rather than any single one, namely: the hyperplasia and hypertrophy of the lower ureters and trigone, combined with the oedema and congestion of the mucous membrane plus the angulation due to rotation, would undoubtedly tend to narrow the lumen of the lower portion of the ureters. Coupled with this a definite atonicity of the propulsive muscles of the ureter and kidney pelvis, which would render these muscles far more readily distended than the normal, and would also explain the lack of pain that one commonly sees in the chronic dilatations due to other causes.

Aetiology of Pyelonephritis of Pregnancy.

To return to pyelonephritis of pregnancy: we have shown that in practically all pregnant women a state of stasis exists in the upper urinary

tract, which provides a very excellent soil for infection. One may liken the urinary tract to a stream of water anywhere, in that a free flowing stream without obstruction is clean while stagnant water is always dirty and prone to infection. Bacillus coli is the most common organism found, it being present in from 80 to 90% of the cases.

The modes of infection in pyelonephritis have long been considered of three sources:—

1. Haematogenous or descending.

2. Lymphogenous. This is claimed to be of two sources, namely, from the lower urinary tract by way of the ureteral lymphatics (although MacKenzie and others in Montreal have recently shown that the lymphatic drainage from the bladder and lower ureters is to the aortic glands), and from a direct connection by lymphatics of the ascending colon to the capsule of the right kidney.

3. Ascending infection. By just which route the infection enters is considerably in dispute but several facts would, I think, lead one to believe that the haematogenous mode is more common. In practically all cases the infection is bi-lateral, although as a rule the right predominates. It is also very common to see the bladder mucosa uninfected even though the urine is loaded with pus. Also, the lower ureters being partially obstructed would tend against urinary reflux. Another mode of infection one sees mentioned is the re-activation of a pre-existing pyelonephritis. The original infection, some claim, dates back to infancy. This is an extremely difficult statement to support by evidence, unless one can get a history of recurring pyelonephritis, also, one is not definitely able to contradict its possibility, so at present it is merely a matter of opinion.

Treatment: It is safe to say that the majority of cases of pyelonephritis never reach the hands of the urologist, and quite rightly so, as if the obstetrician is alert he will detect this condition in the early stages and by instituting proper treatment will be able to keep it under control.

The cases the urologists see are those in which medical treatment will not control the condition, and as we see them they present people who vary from those extremely ill, with chills, marked renal pain and severe toxaemia, to those who have only acute tenderness. The urological treatment consists principally in establishing drainage plus the continuance of forced fluids, and usually some form of urinary antiseptic. These procedures are instituted not with the hope of a complete cure during the pregnancy, but to keep the condition under control until the baby is born. If proper measures are instituted early I would venture to say that only in the rare case would termination of the pregnancy be necessary.

This necessary drainage can be instituted in two ways, namely:—

1. Intermittent catheterization and lavage.

2. Continuous drainage by means of an indwelling catheter.

I think both ways have their place, and the decision of which to use depends upon the condition of the patient. Provided the patient is not extremely toxic, having too severe pain or marked fever, intermittent catheterization, used in conjunction with the usual medical treatment, will suffice to carry these patients through quite comfortably. The number of times this drainage will be necessary will depend on the condition of the patient. Should the patient not respond immediately to this form of treatment one should not delay instituting continuous drainage.

The great value of intermittent drainage is that it usually can be carried out as an ambulatory form of treatment, and so save the patient the expense and dreariness of hospitalization.

As said before, one does not hesitate, if the patient is not progressing or is extremely ill, in instituting continuous drainage at once. This should be done by means of as large a catheter as possible without too much trauma, as the smaller catheters plug too frequently and free drainage is a necessity. Preferably a F7 or better a 10 or 11, using X-ray catheters as they corrode less easily. These are allowed to drain into a sterile bottle, being irrigated often enough to insure continuous drainage. There may possibly be some pain for the first twenty-four hours but this is usually controlled by a morphine and belladonna suppository, or morphine hypodermically if necessary. These catheters can be left in for from ten to fourteen days without changing provided the drainage is free, and should not be removed until the temperature has been normal for several days.

With the institution of continuous drainage fluids should be forced energetically while the fever persists, both by mouth and intravenously, to at least 3000 c.c. preferably more in twenty-four hours. I also like to give Hexamine intravenously (they have the intravenous preparation which contains 31 grs. of Hexamine) every twenty-four hours while the fever persists, if not longer than five or six days.

Do not forget that pregnant women are as prone to have urological pathology as other women, such as renal tuberculosis, renal calculus, previous hydronephrosis etc. If these conditions are not kept in mind many such cases will be missed, and consequently the patient's progress will be retarded or the pregnancy will be terminated unnecessarily, before the actual cause of the failure is found. The same diagnostic measures should and can be employed in the pregnant woman as in the non-pregnant. When surgery is necessary, particularly in the early months, the pregnancy is no contra-indication.

Lastly I want to emphasize the fact that these women who have had a pyelonephritis during pregnancy should be carefully watched through the post-partum period. As I have already mentioned even the so-called physiological dilatation

takes approximately three months to return to normal, consequently it is easy to understand that those who have infection added will clear up slower. Should the pyuria persist active appropriate means of treatment should be instituted, if not the patient will probably be faced with a nephrectomy at some later date. It is a known fact mentioned in most text-books that more women than men are nephrectomized. This increase is undoubtedy due to the post-partum neglect of pyelonephritis of pregnancy.

Conclusions.

1. Dilatation of the upper urinary tract has been shown to be present in practically 100% of pregnant women.

2. This dilatation or statis is probably due to a combination of causes.

3. This dilatation is the underlying cause of pyelonephritis in pregnancy.

4. Should medical measures fail to give prompt relief, drainage should be instituted without delay.

5. If such measures are instituted early and efficiently it is rarely necessary to terminate the pregnancy.

6. The importance of the post-partum observation and care of these cases is to be emphasized.

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*Pyelonephritis of Pregnancy

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History.

The earliest authentic discussion of this topic was first recorded by *Smellie* in his book on Midwifery which was published in 1752. Rayer described the disease in 1840. Reblaub, a French surgeon, published a comprehensive report of several cases in 1892. Since then a plethora of articles dealing with this condition appeared in the medical literature.

Incidence.

Exact figures are rather difficult to secure, as various authorities give different statistics.

Dugald Baird of Glasgow in an excellent monograph on this subject published about a year ago in the Journal of Obstetrics and Gynaecology of the British Empire, reports that pyelonephritis is a causative agent in 15.6% of all cases admitted for antenatal complications in the Royal Maternity and Women's Hospital at Glasgow. Stevens and Henderson from a study of 3,462 pregnant women found this condition present in 1% of the cases. Crabtree and Prather of Boston, give similar figures from a study of over 10,000 cases. My own impression, from the cases in the St. Boniface and the Grace Hospitals, would suggest an incidence of 1% ; i.e., cases of definite pyelonephritis.

This condition is said to be more common in primiparas. My own experience, though it is rather limited, seems to show that multiparas are at least as prone to develop this complication as are primiparas. It usually occurs in the second half of pregnancy. Even the acute form may also occur or be continued during the puerperium. This was true in one of the cases that I will describe presently.

Signs and Symptoms.

Clinically two types are generally recognized. 1st, the acute type, and 2nd, the chronic.

A. The Acute Form.

(1) The most uniform sign is the elevation of temperature up to 104 or more-swinging in type.

(2) Chills—are frequent but not always present. My own experience shows that at least one chill can be expected.

(3) Pain over the kidney region was complained of in my cases.

(4) Severe tenderness in the costo vertebral angle on the affected side or sides can be elicited.

(5) Leucocytosis—usually, though not always, quite high, is present and affects the polymorphs principally.

(6) Pyuria—is a predominating feature.

(7) Sweats—the patients that I have seen, almost all had severe sweating.

(8) Abdominal distention—this does not seem to be given much prominence in the literature, but in at least some of our cases it was quite a troublesome feature.

(9) Frequency and urgency of micturition occurs often.

B. The Chronic Form.

Here naturally the symptoms are not so characteristic. The onset is insiduous etc. There is general malaise, some slight anaemia. This is also often true of the acute form. The costo vertebral tenderness can, as a rule, be readily elicited.

The Differential Diagnosis:

Many conditions have to be kept in mind, such as cholecystitis, toxaemia—of pre-eclamptic type, etc.

The chief problem is occasionally whether one is not dealing with a case of *acute appendicitis,* during pregnancy. In pyelonphritis fever is higher, leucocytosis, usually, though not always, is more marked. Chills and sweats are more common in pyelonphritis.

Costo vertebral tenderness is one of the more or less pathognomomic signs for pyelonephritis. Of course if at all in doubt, ureteral drainage should solve the problem.

* Paper read at Post-Graduate Course, Manitoba Medical College, February, 1937.

Treatment.

The important factor here as for practically all complications of pregnancy is *prophylaxis.*

(1) The elimination of foci of infection particularly *infected teeth* and *diseased tonsils,* must be attended to as they may be responsible for the pyelonephritis of the coccal type. From my own experience, I can say that I never hesitate to urge proper dental care at any stage of pregnancy.

For the tonsils I am quoting from literature, but I think that even a tonsillectomy properly carried out will not lead to abortion or premature labor.

(2) Correction of Constipation. By far the most common organism in pyelonephritis is bacillus colli. We have found it ourselves, by culture in urine of such cases. It has been demonstrated that this organism is absorbed from the bowel and is carried to the kidneys by the blood-stream.

By the proper treatment of constipation during pregnancy we are definitely helping to reduce the incidence of pyelonephritis.

(3) Frequent urinalyses will help to detect pyuria early.

Some of the essential points are as follows:

(1) If a hospital is available it is best that the patient be taken there, at least for the acute case.

(2) Patient is put to bed, and kept warm.

(3) Fowlers position with knees flexed for comfort. If unilateral the patient lies as much as possible on the unaffected side.

(4) Knee chest posture for short period daily is advocated by some. I personally would hesitate to resort to this procedure particularly in the acute cases.

(5) Potassium or sodium citrate, 30 to 40 grains with an equal amount of sodium bicarbonate should be given 3 or 4 times daily.

(6) Codeine or morphine for the relief of pain.

(7) Pitressin and if necessary duodenal drainage for the abdominal distention.

(8) Giving large quantities of fluids 3000 to 4000 c.c. or more in 24 hours is quite important. If nausea or vomiting is present, the fluids will have to be given by proctoclysis or better still by the intravenous route.

(9) After a few days, say a week, of the alkalies, one should change to hexamine and acid Sod. Posph. ten grains of each, 3 or 4 times daily.

(10) Hexamine is also given intravenously, as was done in one of the cases that I am about to report, with definite benefit. Uritone was the particular type used in that case.

(11) Once the diuresis is well established, patient should have a liberal diet to avoid emaciation.

(12) Ketogenic diet would hardly seem appropriate as one has to reduce the fluid intake.

(13) Mandelic acid is worthy of a trial.

(14) Exhibition of iron in all cases, and blood transfusions for anaemia when indicated.

(15) The next procedure would be ureteral drainage.

(16) Termination of Pregnancy. This has to be resorted to in some cases. Where all previous measures fail to give definite results, induction of labor should not be delayed too long. Many authorities agree with this, e.g., Livermore of Memphis, states that failure to control infection necessitates this termination of pregnancy. The quinine and small doses of pituatory extract should be tried for this purpose, and then if necessary the introduction of a rubber tube—into the uterine cavity. This method will seldom fail to establish definite labor pains.

Prognosis.

A. For the Mother.

Fatalities though they do occur are fortunately quite rare. According to Dugald Baird, the mortality is about 3%. In Professor Boyd's museum at the medical college, I could not find a single specimen, though, as no doubt most of you know, there is an excellent collection of kidney specimens there.

This does not mean that the mothers are all cured. A good many remain premanent invalids, and do have subsequent recurrence of the condition.

B. For the Foetus.

The prognosis is poor. Abortions and premature labor if not actually induced, sometimes occur spontaneously. Also, although the infection does not actually invade the uterine cavity, the nutrition of the foetus is interfered with. Stillbirths and death of the foetus shortly after birth occur in about 15% of the cases; this, in addition to early abortion.

Case Reports.

I will now present histories of 2 cases with slides.

1. Mrs. E. R., age 30, admitted to the St. Boniface Hospital December 27, 1929. Para I.—Gravada II. Last menst. period July 15/29.

Present Illness: There was an acute onset with severe backache, chills, fever, frequency, and dysuria. Urinalysis showed much pus, albumin, and a trace of blood. Blood count was R. B. C., 4,150,000; W C B., 19,400. Blood culture was negative.

She was placed on a fluid diet and given Sod. Citratis gr. XX., tid. for 3 days; this was then changed to Urotropin gr. X., bid. Foments were used externally. She improved, and against our advice, went home on January 11, 1930. She came back again on January 15, 1930, with a return of practically all the signs and symptoms as at the

first admission. Expectant treatment was carried out but she failed to show improvement. By February 10, 1930, Rd. Bl. corpuscles were down to 2,320,000, achromia being present. On February 7, 1930 the urologist did bilateral ureteral drainage. There was no improvement. On the suggestion of the urologist, Pyridium was given. There was still no improvement. February 11, 1930, she was given a transfusion of 400 c.c. of whole blood by the direct method. As her condition did not show improvement, labour was induced on February 16, 1930, by introduction of "rectal" tube into uterine cavity. A still-born foetus was expelled on February 19, 1930; she then commenced to show improvement and was discharged as recovered on March 22, 1930.

This patient had 2 full term deliveries since then; without any severe exacerbations. However she had been more or less a constant invalid. I saw her a few days ago; she certainly did not look healthy. She refused to submit to a proper urological examination.

2. Mrs. J. D., age 44, Gr. VIII.—Para VII. This patient was admitted to the St. Boniface Hospital November 19, 1936, because of Polyhydraminos and glycosuria. She gave a history of "kidney" and "bladder" trouble of over 2 years. On November 21, 1936, she had severe headache, chills, sweats, night and day frequency of micturition with "burning."

The sugar "tolerance test" gave a typical diabetic curve. However, I may say here that during the entire illness, the diabetes was easily controlled. On November 22, she went into labor spontaneously and was delivered of a premature foetus, which only lived a few hours. The patient's condition did not improve, and during the puerperium, she continued to have nearly all the signs and symptoms of pyelonephritis. Blood cultures were negative.

Culture from urine was positive for B. Coli. She was transferred to the urological service. Here she was treated among other things, with hexamine—"uritone"—intravenously also with mandelic acid with obvious good results as the slides show. X-ray findings showed definite pathology in both the ureters, pelvis of the kidneys, as well as kidney substance. Marked abdominal distention was a predominating factor.

Summary:

(1) Pyelonephritis is not a rare complication of pregnancy.

(2) General prophylactic measures during pregnancy will help to prevent pyelonephritis.

(3) Multiparas are just as prone to develop this complication as are primiparas.

(4) In a number of cases, termination of pregnancy must be resorted to.

(5) The prognosis for the foetus is bad.

(6) The prognosis for the mother as to life is not dangerous but chronic invalidism follows in a good proportion of cases.

I wish to express my gratitude to Sister Tougas for the preparation of the slides; to Drs. Bourgoin, Arthur, Adamson and A. Hollenberg, for their co-operation in the case of Mrs. D., to Dr. Morse for his many valuable suggestions, and to the house surgeons for their assistance.

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By

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Introduction

The selection of a subject for an address of this nature for some would be easy, for others difficult, but I assume that a strictly scientific one is neither expected nor desired. I believe rather, that it is an appropriate thing to deal with some general theme pertaining to our profession, such as medical economics, medical education, or some more restricted subject such as the story of the life and work of one who has left an imprint on the road of medical progress. Your speaker will not presume to attempt the former, but will take you over a brief review of the life and work of a man whose name, at least, is known to most, if not all of you, while some of you have seen him and known him personally.

Tradition binds us with unbreakable bonds to the motherland from whence has come so much of what is good and worth while, not alone in medicine, but also in many other things. For centuries she has led the way. We are justifiably proud of our close family connections with her, and all of us, I am sure, hope that these ties may yet be more closely knit. But true science knows no national boundary and British medicine—along with European medicine, overflowed the narrow confines of their respective borders, and have left their impress on the whole world. Because of a common language, and in spite of a superficial national difference, no part of the world except the Dominions themselves has received and taken up the British ideals of medicine to as great a degree as has the United States of America.

In the retiring address of the immediate past president of the American College of Surgeons, Wm. D. Haggard said: "The background and tradition of the surgeons of the New World are predominantly British. Before the arrogant George III. lost the American colonies, the best medical men in the new country were graduates of the University of Edinburgh." Up to about 1860 most medical post graduate study of Americans was done in Great Britain, and though since this date many have studied in Vienna, Berlin and Paris, even yet the American doctors attend in greater numbers the clinics and hospitals of Great Britain than those of Europe. Listening to addresses in American medical meetings or reading their literature, one frequently notes a pride in connection between their own medicine and that of our motherland.

We as Canadians and friendly neighbors of our fellow practitioners across the international boundary are glad to admire American Medical progress.

Partially for these reasons and also because we in this society, on past occasions such as this, have heard about men of the old lands, but to my recollection, not of America, I propose to speak about an illustrious American—one who was profoundly influenced by British thought and honoured by British institutions as well as those of other lands. I refer to the late John B. Murphy of Chicago.

Education

Murphy was born of humble parentage on a farm near Appleton, Wisconsin, December 21st, 1857, and died August 11th, 1916, at fifty-nine years of age. Like many others who have risen to eminence in various vocations, his start in life trained him in the honest, earnest industry which characterized his life's work.

After passing through the public and high schools of his neighborhood, he taught school to advance himself in his chosen calling, and those who have attended his clinics or read them, and knew how thoroughly he quizzed his housemen, can readily imagine that those school children were thoroughly taught. This early training as a teacher, doubtless played no small part in his later success in life, for it was as a teacher of surgery he became most eminent.

* Address delivered by the retiring president at the annual meeting of the Winnipeg Medical Society, May, 1935.

He graduated in medicine from Rush Medical College, Chicago, in 1879, at twenty-two years of age, and spent one year as senior interne at Cook County Hospital, where he attracted the attention of his seniors by his devotion to, and enthusiasm for his work, and his methodical manner of doing it.

Two years of private practice, largely among his Irish compatriots of Chicago, secured for him enough money to go to Vienna for one and a half years of post-graduate study. Here he came under the influence of one of the greatest of European surgeons, Professor Billroth, who was then at the height of his great career, and also Professor Albert, who was one of the greatest surgical teachers of that time. Another who profoundly influenced him, by his teaching of Surgical Pathology, was Christian Fenger of Chicago, described as the father of modern surgery in the Western States.

Fenger's pathological basis, Billroth's research and operative originality, and Albert's teaching methods, combined to spur Murphy on to do what few if any have ever accomplished in the same length of time that he was at work. An indefatigable labourer with a glowing zeal and a profound love for study, along with a remarkably good intellect of a discriminating and retentive type, made him later the acknowledged leader of surgical teachers of his day.

Lister's epochal work had been but a short time underway when Murphy studied with Billroth, and fortunately Lister's teaching had been endorsed and accepted in the continental clinics Murphy attended. He applied Lister's principles to his work from the outset.

The adoption of these principles opened up wide fields for research in areas of the body heretofore entered only in cases of great necessity. The abdominal cavity was, comparatively speaking, a closed book to the surgeon, but now was being explored with much greater safety. Into this new work, Murphy a young man in his early 20's, was ushered, and he threw himself into this research with great enthusiasm. His earlier work was in abdominal surgery, and it was in this field he first attracted world attention.

Reference here should be made in passing to one who throughout Murphy's medical life played a very important part in his work and helped in no small degree to make possible his contribution to medical science. He married a well educated young woman of good social standing in Chicago, one who could, had she so chosen, have spent her time in the leisure of society. From the beginning of their married life, however, she set herself devotedly to the task of assisting him in every possible way. A charming hostess and capable household manager, she relieved him of all responsibilities of the home. She entered enthusiastically into his experimental work which he began in the barn at the rear of their home. Here, working long into the nights, they experimented on dogs, Mrs. Murphy being the anesthetist. It was in this barn that Murphy first tried out his button (and it was Mrs. Murphy who recovered the first button passed by an experimental animal). Not alone did she take the keenest interest in his work, but she was also the careful guardian of his health which at no time was robust. Much of Murphy's works and success was due to this experimental work which he always carried on, and in which his wife aided him all through their married life.

Anastomosis Button

Murphy was a pioneer in the modern treatment of appendicitis. His earlier writings on this subject and also his monumental contribution on Ileus had brought him widespread notice, but it was not until he had perfected and announced his anastomosis button, that he became a world figure in surgery.

It is of more than passing interest to learn that appliances of one kind and another had been used for the purpose of joining up the hollow abdominal viscera, particularly the intestine, long before Murphy devised his button. Heinrich Von Pfolisplundt whose writings on surgery were published in 1460, described a silver tube flanged at each end over which severed ends of gut were drawn and stitched together, and the tube allowed to remain in situ. He states he had often seen these tubes used and the patients live for many years afterward. Even ante-dating this period an Italian surgeon, Branca, had employed the trachea of an animal as the tube over which the wounded ends of intestine were brought together. This had the advantage of not having to be passed by bowel, for after a time it became disintegrated in the secretions, but it remained intact until after thorough repair of the intestine had occurred. These devices must have been used infrequently and possibly only in cases of penetrating abdominal wounds involving the intestine.

Denans, a surgeon of Marseilles, in 1826 described a method of effecting an end to end union of gut in transverse wounds or after resection by the use of rings of silver or zinc, but it was not until Nicholas Senn devised the bone plates that any considerable number of uninjured bowel cases were operated on and joined by means of mechanical apparatus. Good and bad results were obtained by the use of Senn's plates. The use of them required skill and patience, a number of additional sutures were necessary in their use and the method had a limited popularity. The introduction of Murphy's button entirely supplanted Senn's plates.

After repeated experiments on dogs, he used it on man and proved its worth in the anastomosis of the hollow peritoneal coated viscera. He published a paper entitled "A Contribution to Abdominal Surgery; Ideal Approximation of Abdominal Viscera Without Suture," in the North American Practitioner of November, 1892, about forty-three years ago. In it he first described this ingenious device and its use. In every part of the world Murphy's button was soon in use, and

he was established as an international figure. Lord Moyniham has said that the button was the most exquisite surgical implement ever invented. It is a fair venture to say that today, forty-three years after its origin, there are many operating surgeons who have never seen a Murphy button, let alone used one. Difficult and dangerous operations of that period were made easy and much more safe. Thousands of lives have been saved by its use, but many times these thousands are being saved yearly by the application of the principle of visceral union taught by the button. Where formerly hundreds of stitches were laboriously used in anastomosis with all the handling, trauma, and increased risk of infection, entailed in so doing; now but few are used. The button proved how safely and rapidly peritoneal junction took place if divided gut were held in even approximation for a few days and proved the permanence of the union. The button led to a search for other methods of applying the principle it had demonstrated and the present day methods of abdominal visceral union have emerged as a result. Murphy wrote about and talked about the button, gave demonstrations of its use in many clinics to which he was invited, described the pathological histology of intestinal approximation and union in minutest detail and gave such a stimulus to the surgery of the stomach and intestines that to him may be ascribed the honour of having initiated the most valuable educative step in the history of abdominal surgery.

Always well in the forefront of advances, he gradually used his favorite button less and less, adopting the newer methods of union, but he did use it on occasion up to the time of his death. It had meant much to him and he could properly be excused in his enthusiasm for it, particularly as he was a master technician with it, and knew its indications so thoroughly.

In the long and minutely detailed article entitled "Intestinal Approximations; Its Pathological Histology of Reunion and Statistical Analysis," already referred to and published by Murphy in the Medical Record, May, 1894, I noted something of interest to Winnipeg practitioners. Dr. Alexander Hugh Ferguson (one of the founders of Manitoba Medical College, and one of the leading surgeons of Winnipeg, of that date) writing to Murphy in July, 1893, said, "I wish simply to congratulate you upon your invention of the Anastomosis Button, and to say I used it four days ago in a gastro-duodenostomy (end to side) after pylorectomy for cancer. The time from taking the knife to complete closure of abdomen, one hour and twenty minutes. Since the operation there has been no vomiting, no tympanitis, restlessness, no pyrexia. The pulse at its highest was 108. The largest sized button suited admirably, and I am sure shortened the time one-half." The follow-up notes of Dr. Ferguson are as follows:—

August 14th—"My case of pylorectomy has made an uninterrupted recovery. The button was passed sixteen days and ten hours after operation. He is now eating meat, potatoes, etc., which he has not done for five years."

September 1st—"Patient discharged from hospital on the twentieth day, apparently in perfect health. He has gained five pounds since the operation."

December 28th — "Patient has gained fifty pounds since operation."

Of further interest Murphy records in this article the fact that the first successful American operation for cancer of the stomach—a pylorectomy and gastro-enterostomy was done by Dr. W. T. Bull on April 10th, 1890. That is just 45 years ago. The hazards and high mortality rate of this and other procedures calling for anastomosis are amply proven by Murphy's analysis at that date. Ferguson's statement that with the button he had cut the operating time one-half indicates what the button meant to surgery of those days. Had Murphy done nothing else than to have produced his anastomosis button, his name and fame would endure throughout the ages.

Some idea may be obtained of what a reader Murphy was, and how thoroughly he dealt with a subject, when we note that in the Bibliography appended to the article just referred to, we find 271 references.

In Franklin Martin's Autobiography, the following reference to the button is made:—

"One day as I left my office in the Venetian Building and stepped into the elevator, I was greeted by Dr. John B. Murphy who abruptly said, 'Martin, here is something that is going to revolutionize intestinal surgery,' as he thrust into my hand a brass ball that resembled a miniature sleigh bell. I looked at it rather uninterestedly, and asked how the little thing was going to accomplish so great a feat.

"He grabbed it out of my hand, backed me into a corner in the busy lower corridor, separated the ball into two pieces, took up the tail of my coat, thrust the stem of one piece through the frail cloth, turned it over, and snapped the other half of the hemispheric apparatus over the stem as it projected on the reverse side of the cloth. The two ends of a cut intestine, he said, could thus be joined together in half a minute—a complete anastomosis. I was impressed by his enthusiasm, but doubted his sanity and asked him to untangle me from the contrivance. How I wish that I had demanded those brass 'buttons' as recompense for the penetration of my garment."

"Then he explained that this item of brass, after it had remained long enough to unite the intestine permanently, would detach itself, and be passed from the bowels by the natural channel.

"I drew back and exclaimed, 'Would you place that brass ball, an inch in diameter, into the intestines of a sick man when we make a fuss over a child swallowing a penny?' "

"Nothing to your objection. I've tried it on many dogs without a fatality. I'm going to pre-

sent my reports soon; and also regarding its use on human."

"It was so simple that any operator whose surgery was clean, who knew his anatomy, and the indications for its use could employ it with ease. I used it once, and then I used it many times. Success attended every venture, but each time my night's rest was disturbed until the button had been recovered after its successful transit."

Appendicitis

To touch on all Murphy's work would be impossible. Mention has been made of his button. His early work was mostly in the realm of abdominal surgery and when you recall that the modern conception of appendicitis had its birth with Murphy, you can easily imagine his enthusiasm in this work. The first time that an appendectomy was deliberately planned in a case where the disease had not already gone on to the stage of phlegmon of the abdominal wall, was done by Murphy March 2nd, 1889. In the next 14 years he had treated 2,000 cases, operating on many of them in the earlier days, in their private homes.

In December, 1889, he published a paper on "Early Operation in Perityphlitis," urging this procedure, and in August, 1904, he analyzed these 2,000 cases of appendicitis and gave his deductions. Fierce battles had been and were being waged for and against early operation, and the following cryptic remarks are characteristic of Murphy. "The medical profession as a body, always has preferred to theorize and dream rather than analyze, investigate, or accept facts. Everyone recalls how reluctantly the advocate of the soothing, death lullaby of the opium treatment vacated his position, and how equally persistent and belligerent was the advocate of the death groaning calomel and castor oil participant; the still unconquered, nine-lived procrastinator has not yet capitulated, each and every one of these standing out against the most convincing presentation of pathological phenomena."

His analysis of these 2,000 cases reveals his thorough study of appendicitis and gives justification for his dogmatism when he spoke or wrote about it. His contribution to this subject published in Keen's Surgery in 1911 is a classic and perhaps the best ever written.

Closely allied to his work on appendicitis in which he did so much to perfect its detection and treatment, was his work and teaching about peritonitis. His famous dictum of "get in quickly and get out quicker" exemplifies not alone his manner of teaching, but also—and what is of far more importance—his true appreciation of the disease and how to treat it, an appreciation worked out by careful study of the anatomy, physiology and pathology coupled with his researches in the laboratory in the barn at his home. By the younger graduates of medicine, Murphy's principles in the treatment of peritonitis are never questioned, but at the time he enunciated them and for some considerable period after they were first advanced by him, thousands of patients suffering from this disease were needlessly dying annually or suffering an untold and unwarranted morbidity. Some of us can recall the widespread searching and mauling of the abdomen in these cases with follow-up flushing of gallons of various types of fluid into all possible recesses of that cavity, after which, if the unfortunate patient survived, he was further subjected to barrels of irrigating fluids to wash out and clear up his disease. Having convinced himself of the right way to deal with these cases, he used all the force of speech and letters of which he was capable, to teach the correct way of treatment and which is summed up so aptly and correctly in his own words "Get in quickly, get out quicker." Humanity owes much to Murphy for this work done in the pioneer days of abdominal surgery, and while Bartlett's and the intravenous methods of administering fluids to peritonitic patients have practically supplanted the Murphy Drip, nevertheless he was on the right track when he instituted this detail in its treatment.

Chest Surgery

On May 4th, 1886, in the old Haymarket Square, Chicago, one of the worst riots in the history of that city took place. Eight policemen were killed and sixty-eight others were wounded, but recovered. The number of rioters killed or wounded was never known. Murphy attended thirty of the injured policemen and followed up their treatment. Amongst these cases, he treated one who "had a considerable portion of the lower part of the right chest carried away; the opening was so large that the hand could be inserted into the pleural cavity. The lung could be observed contracting slightly on every inspiration; with the mouth open and the upper air passages free it expanded but very little in expiration; if, however, the upper air passages were closed when the patient expired the lung filled the entire chest cavity, and when an effort of coughing was made, a hernia of the lung resulted." This short extract describing the wounded policeman is taken from the oration in Surgery at the 49th annual meeting of the A.M. Association at Denver, delivered by Dr. Murphy under the title "Surgery of the Lung."

This case presented to Murphy his "first opportunity to observe this action of the lung in the human subject." It did more than that however because it started him in his thoracic research work carried out largely in his barn laboratory.

It would be difficult to conceive of a more thorough review of the subject of surgery of the lung presented in the form of an address than that delivered by Murphy at this meeting in 1898, 12 years after the Haymarket Riot. It reveals his complete mastery of the subject and some of the laborious laboratory work he did. Complete as it is in its details about the anatomy, physiology, pathology and treatment of thoracic diseases, this address is most notable today because of what he said in reference to the pneumothorax method of treatment of phthisis by the use of

nitrogen gas. He minutely gave the indications and contra-indications for this method and described the technique. He gave the histories of cases he so treated, stating they were all progressing favorably—urged the advantages of X-ray check-up in this treatment, and stated that this method was most applicable in apical and monolobar tuberculosis in the early stages, as the pathological conditions are such that the compression of the lung can be accomplished and adhesions are not likely to be found. Advanced or chronic cases were not suitable because of the fibrous deposits and adhesions which prevented compression by gas. He also dealt with thoracoplasty and other surgical procedures, but it is amazing to read that Murphy in 1898—37 years ago, demonstrated, proved and urged a method of treatment for phthisis which was not accepted then, but years later, and which is universally used today. It required 43 pages of the American Medical Journal to print this address on Surgery of the Lung. The minutes of the American Medical Association record that "Dr. Murphy was thanked for his address." This work is but another example of his achievements and illustrates again the workings of his keen mind which placed him in the very forefront of the profession, and in advance of his time.

Other Researches

Murphy's contributions to the surgery of bones and joints, of the urinary system, of the nervous system, the vascular system, of tuberculosis generally throughout the body, of the gall bladder and muscles and tendons, in fact to the whole range of general surgery were notable and of the highest order. He was intensely interested in cancer, and was preparing a text book of surgery which he had not completed when his health failed.

That one man could do so much as he did, is almost unbelievable. His insatiable thirst for knowledge and his restless energy impelled him, all through his life, to undertake new ventures and grapple with unsolved problems. With diligence and perseverance, he pursued whatever he set himself to do, and the hope of the profession was raised when it became known that Murphy was at work on some problem new or old. They awaited his findings with confident expectation. His approach to these studies was orderly and systematic. First he thoroughly mastered the gross, then the histological, embryological and pathological anatomy of the part studied. Then the physiology was as thoroughly dealt with, and afterwards his experiments began.

This methodical manner of study resulted in advances in many of his fields of endeavor. His keen powers of observation and retentive analytical mind helped him greatly to reach conclusions, not alone in advance of his time, but with few exceptions not disproved today. After thorough mastery of a problem and convinced as to his conclusions, he spoke and wrote in an authoritative way, repeating his principles over and over again to his hearers and readers in order to emphasize and drive home his beliefs. He knew thoroughly any subject about which he was writing and talking.

A study of his writings astonishes one to think that a person who was so busy with a tremendous private and hospital practice, and who also took such an active part in the affairs of medical societies, could possibly have written so much of such a high standard on such a multiplicity of subjects.

Some comprehension of his work may be had by recounting that he published 66 papers, many of these dealing with his experimental researches, that he gave many addresses to the laity on medical topics or subjects touching on medicine, that he edited his clinics, wrote articles in texts of surgery, was a President of the American Medical Association, Professor of surgery and clinical surgery, Northwestern University Medical school, Chief Surgeon Mercy Hospital, Chief of Editorial Staff of "Surgery Gynaecology and Obstetrics" President of the Clinical Congress of Surgeons of North America, and a Founder and Regent of the American College of Surgeons. He was one of the greatest forces behind the formation of the American College of Surgeons.

Time forbids further detailed review of his work, but mention should be made of the fact that he was the first person to perform a successful end-to-end union of an artery in the human (1896).

He was probably the last great general surgeon. The regret is that his life was so short. What might he have further done had he lived longer!

Methods of Work

That he was capable of doing so much was due to his ability to marshal his helpers to the best possible advantage, and also by following out a strict schedule for himself.

He began work at 8 a.m., working every day except Sunday, reserving Tuesday forenoon for operations outside Chicago or for original experimental work. From 12 to 1 was taken for lunch and 2 to 6.30 for private consultations, 6.30 to 8 for dinner, and 8 to 11 for correspondence, reading and writing. His forenoons were spent in clinics both public for students and physicians, and private for graduates only, in operating and describing the operations and the pathological conditions found, and reviewing the progress of the patients in hospital. Copious notes were freely and carefully dictated and recorded, and these together with carefully prepared histories of the cases made available to him valuable records for reference at all times. He was most insistent on minute details of history and demanded always the proper sequence of events. His analysis then, of groups of similar cases, was valuable, and led in part at least to his dogmatic style of writing and teaching. It was only by setting for himself and his assistants this austere routine that it was possible for even a person

of his determination and brilliance to accomplish what he did.

Last Days

He had stated that he did not desire to linger when his work was done, and in this he had his wish. He did his last work in the early part of May, 1916, and then on the advice of his physicians, went on a holiday which was to last till September. Early in August his condition became much worse, and he died on August 11th.

For about six years before his death, he had attacks of angina pectoris. Gradually these became more frequent and severe. Several times he had to lie down on the floor of the operating room till the attack eased off enough for him to continue his operation. In July he secured Sir Clifford Allbutt's latest contribution to the subject of Angina Pectoris and this was afterwards found among his possessions. He had underscored it in many places, and had many marginal notes in it applying to his own case.

In 1883, while in Vienna, he developed haematuria, and was told it was from a tubercular kidney. He started for home, but before he left the continent the haematuria ceased, never to return. The post mortem revealed a right kidney almost wholly destroyed, though not tubercular, and it was considered the seat of infection which caused the changes in his abdominal and thoracic aorta, and the coronary vessels which caused his death.

He desired that a necropsy be done, and two days before he died wrote out his estimate of what would be found. This tallied remarkably well with the actual findings.

In his writings and teachings he constantly stressed the advisability of removing foci of infection. It is an ironical thought that had his diseased kidney been removed, he most probably would have lived longer. Thus the whim of fate turned upon him, and he died through the neglect of applying these teachings to himself. Throughout the years the kidney had been quiescent. He stated that he "had an infection of the kidney 33 years ago—probably that is the origin of my trouble. I think my trouble is due to metastasis from some point not causing any discomfort." The last sentence of the autopsy report is:—"Had Dr. Murphy's right kidney been removed in 1883, or at any time within twenty years thereafter, I think his arteritis would have been prevented."

Most of the Murphy orations which are given at the annual meetings of the American College of Surgeons have been given by Britishers. Lord Moynihan, then Sir Berkely Moynihan, delivered the first Murphy oration in October, 1920. He described Dr. Murphy as being beyond question the greatest clinical teacher of his day and concluded his address by placing "John Benjamin Murphy among the heroic figures of all time in medicine—men of supreme achievement, and few in numbers."

Department of Health and Public Welfare

NEWS ITEMS

RADIO HEALTH AND WELFARE PROGRAMMES: The eighth radio programme of the Manitoba Department of Health and Public Welfare for the Season of 1937-1938, will be broadcast each week under the title "The Health Review" by Stations CKY and CKX on Wednesday from 4.45 to 5.00 p.m.; and by "The Health Reporter" of Stations CJRC and CJGX on Thursday from 8.05 to 8.15 p.m.

THE HEALTH REVIEW will be given in a series of talks as follows:—

October 6, 1937—Introduction by the Minister of Health and Public Welfare.

October 13-27—Your Health and Mine.

October 27-December 1—Child Welfare in Manitoba.

December 8-15—Discovering Tuberculosis.

December 22—Health and the Christmas Holidays.

December 29—Looking Forward, a New Year's Message.

January 5-February 9—Understanding Our Children—a series of six talks by the Winnipeg Parent Education Association. This feature is a continuation of the series begun in March with the co-operation of the Winnipeg Parent Education Association, as a means of helping groups of parents who met together to study outside of Winnipeg, as well as individual mothers in isolated districts.

February 16-March 23—Training to Hear—a series of six talks by the Winnipeg League for the Hard of Hearing. This series is also a continuation of those given last April for the purpose of aiding hard of hearing persons.

March 30-May 11—The Health Detective in Science—a series of seven talks to relate how science aids in safeguarding and promoting health and welfare.

May 18-May 25—Aids to Safety. This series has been prepared by a well known Canadian who has made a deep study of accident prevention measures from a point of view not yet considered by the average person.

June 1—Summer Hazards.

"THE HEALTH REPORTER:" Beginning Thursday, October 21, 1937, at 8.05 p.m., and continuing regularly thereafter every week until May 27, 1938, a health reporter will give a summary of the week's news concerning new health ideas and events, as a means of keeping listeners in touch with health matters of current interest.

BROADCASTING CALENDAR 1937-1938

THE HEALTH REVIEW

Stations CKY and CKX—Eighth Series
Wednesday, 4.45 to 5.00 p.m.

A series of talks on questions affecting health and human welfare will be given every Wednesday at 4.45 p.m., as follows:—

October 6, 1937—Introduction by the Minister of Health and Public Welfare.

October 13-27—Your Health and Mine.

October 27-December 1—Child Welfare in Manitoba.

December 8-15—Discovering Tuberculosis.

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March 30-May 11—The Health Detective in Science.

May 18-May 25—Aids to Safety.

June 1—Summer Hazards.

THE HEALTH REPORTER

Stations CJRC and CJGX—Second Series
Thursday, 8.05 to 8.15 p.m.

Beginning Thursday, October 21, 1937, at 8.05 p.m., and continuing regularly thereafter every week until May 27, 1938, a health reporter will give a summary of the week's news concerning new health ideas and events, as a means of keeping listeners in touch with health matters of current interest.

Note: Extra copies of this programme may be obtained on request.

Listeners are invited to send comments or questions to the Radio Stations in which the programme originated, or the Department of Health and Public Welfare, Winnipeg.

COMMUNICABLE DISEASES REPORTED

Urban and Rural - September, 1937.

Whooping Cough: Total 166—Winnipeg 87, St. Boniface 16, Flin Flon 11, Kildonan East 10, Unorganized 9, Lakeview 7, St. Vital 5, Whitemouth 3, Desalaberry 1, Fort Garry 1, Montcalm 1, Norfolk North 1, St. Paul East 1, Wallace 1, Woodland 1 (Late Reported: August, Portage Rural 6, Unorganized 3, Cartier 1, St. Boniface 1).

Anterior Poliomyelitis: Total 155—Winnipeg 42, Transcona 31, Unorganized 17, Minitonas 6, St. Vital 5, Swan River Rural 4, St. Boniface 4, Kildonan East 3, Morden 3, Portage Rural 3, Stanley 3, St. Clements 3, St. James 3, Montcalm 2, Portage City 2, Argyle 1, Brokenhead 1, Fort Garry 1, Franklin 1, Hanover 1, Kildonan West 1, Langford 1, Morris Rural 1, Pembina 1, Rhineland 1, Rosedale 1, Shell River 1, Souris 1, Selkirk 1 (Late Reported: August, Morden 3, Minitonas 2, Transcona 2, Cypress North 1, Swan River 1, Stanley 1).

Scarlet Fever: Total 65—Winnipeg 38, Bifrost 4, Kildonan East 4, St. Vital 2, Cartier 1, Flin Flon 1, Selkirk 1, Springfield 1 (Late Reported: July, Unorganized 1; August, Cartier 10, St. James 1, St. Vital 1).

Chickenpox: Total 44—Winnipeg 25, Brandon 10, Rockwood 2, Wawanesa 2, Oakland 1, Woodlands 1 (Late Reported: August, Portage Rural 3).

Measles: Total 25—Unorganized 13, St. Anne 6, Daly 1, Gimli Town 1, St. Boniface 1, Wallace 1, Winnipeg 1 (Late Reported: August, St. Andrews 1).

Mumps: Total 13—Winnipeg 10, Cameron 1, Morton 1, St. James 1.

Typhoid Fever: Total 8—St. Boniface 3, Grey 2, Unorganized 2 (Late Reported: August, St. Boniface 1).

Diphtheria: Total 7—Ericksdale 2, Norfolk South 2, Winnipeg 2, Transcona 1.

Tuberculosis: Total 4—Winnipeg 4.

Erysipelas: Total 2—Unorganized 2.

Trachoma: Total 2—Brandon 1, St. Boniface 1.

Undulant Fever: Total 1—Brandon 1.

Cerebrospinal Meningitis: Total 1—Winnipeg 1.

Venereal Disease Report: Total 112—Gonorrhoea 88, Syphilis 24.

DEATHS FROM ALL CAUSES IN MANITOBA

For the Month of August, 1937.

URBAN—Cancer 33, Tuberculosis 9, Pneumonia 6, Syphilis 3, Diphtheria 1, Infantile Paralysis 1, Epidemic Encephalitis 1, Typhoid Fever 1, all others under 1 year 3, all other causes 132, Stillbirths 10. Total 200.

RURAL—Cancer 25, Tuberculosis 15, Pneumonia 14, Whooping Cough 3, Influenza 2, Diphtheria 1, Measles 1, Epidemic Dysentery 1, Ophthalmia Neonatorium 1, all others under 1 year 5, all other causes 134, Stillbirths 11. Total 213.

INDIAN—Tuberculosis 18, Pneumonia 5, Epidemic Dysentery 1, Cancer 1, all others under 1 year 1, all other causes 2. Total 28.

The College of Physicians and Surgeons of Manitoba

NOTICE

At the recent election for membership to the Council of The College of Physicians and Surgeons of Manitoba, the following were duly elected:—

Brandon ..... Dr. H. O. McDiarmid

Dauphin and Nelson ..... Dr. W. J. Harrington

Lisgar ..... Dr. C. C. Everson

Macdonald ..... Dr. A. E. McGavin

Marquette ..... Dr. S. Bardal

Neepawa ..... Dr. J. S. Poole

Portage la Prairie ..... Dr. W. H. Rennie

Provencher, Springfield and St. Boniface ..... Dr. James Prendergast

Selkirk ..... Dr. D. G. Ross

Souris ..... Dr. W. F. Stevenson

Center Winnipeg ..... Dr. W. E. R. Coad, Dr. T. Digby Wheeler

North Winnipeg ..... Dr. Frank A. Smith, Dr. William Turnbull

South Winnipeg ..... Dr. W. G. Campbell, Dr. J. S. McInnes

Representatives of the Medical Faculty of the University of Manitoba ..... Dr. H. D. Kitchen, Dr. W. W. L. Musgrove

Obituary

DR. OLAFUR BJORNSON

Dr. Olafur Bjornson, former Professor of Obstetrics in the Faculty of Medicine, University of Manitoba, died at the Winnipeg General Hospital on October 2nd, in his 69th year. Born in Iceland, he came to Manitoba with his parents in 1876, in one of the great movements of Icelandic people to this country. He was educated in Winnipeg schools and graduated in Medicine in 1897. Five years later he did post-graduate work in Europe and Great Britain, particularly at the Rotunda Hospital, Dublin, and shortly after his return he was appointed to the honorary attending staff of the Winnipeg General Hospital, serving until 1932.

Possessed of those rare gifts, originality and humour, he contributed much to the college, hospital and community through his inspiring teaching, and he will be affectionately remembered.

Medical Library University of Manitoba

Current Medical Literature

"The Lancet"—April 3, 1937.

"Cancer Tests and Treatments"—by P. N. Panton, M.B., Camb., Director of the Clinical and Research Laboratories of the London Hospital.

"Studies in the Serum Treatment of Lobar Pneumonia"—by G. J. Langley, M.D., F.R.C.P., Lond., Reader in General Therapeutics, University of Manchester; Visiting Physician, Hope Hospital, Salford; W. MacKay, M.D., F.R.F.P.S., Glasg., Physician, Hope Hospital; and L. Stent, M.D., Manch., Dipl. Bact., Assistant Pathologist, City of Salford.

"Ancylostoma Anaemia"—by M. Mahfouz Fikri, M.B., B.Sc., D.T.M. & H., Lond., Lecturer in Clinical Pathology in the University, Cairo; and Paul Ghalioungui, M.D., M.R.C.P., Lond., Medical Tutor in the University.

"The Clinical Diagnosis of Polyarteritis Nodosa. With a Report of Four Recent Cases"—by A. W. D. Leishman, B.M., Oxon., M.R.C.P., Lond., Chief Assistant to a Medical Unit, St. Bartholomew's Hospital, London.

"Repeated Perforation of a Peptic Ulcer: With Subsequent Treatment"—by A. C. Lysaght, F.R.C.S., Eng., Consulting Surgeon to the Pontypool and District Hospital; Assistant Surgeon to the Cardiff Royal Infirmary; and W. Barry Williams, B.Sc., M.B., Wales, Surgeon to the Pontypool and District Hospital.

"Labour Complicated by Thrombosis of the Mesentery: Resection of Ten Feet of Small Bowel—Patient Alive and in Good Health Twenty-Four Years Later"—by G. Grey Turner, M.S., Durh., F.R.C.S., Eng., Professor of Surgery in the University of London.

"Cystic Degeneration of the Chorionic Villi in the Sixth Decade"—by Charles Hollosi, M.D. (From the Surgical Clinic, University of Tisza Istvan, Debrecen, Hungary.

"The Lancet"—April 10, 1937.

"Pathology of the Adrenal Gland in Relation to Sudden Death"—by C. Keith Simpson, M.D., Lond., Assistant Lecturer in Forensic Medicine at Guy's Hospital.

"Diphtheritic Myocarditis: An Electrocardiographic Study"—by Norman D. Begg, M.D., Aberd., D.P.H., Medical Superintendent to the Borough Infectious Hospitals, Southend-on-Sea.

"The Action of Corpus Luteum Hormone on the Human Menstrual Cycle"—by Thomas N. Morgan, M.D., Aberd., Lecturer in the Department of Materia Medica, University of Aberdeen; Visiting Physician to the Woodend Hospital; and Clinical Tutor at the Aberdeen Royal Infirmary; and Sydney G. Davidson, F.R.C.S., Eng., Assistant in the Department of Surgery, University of Aberdeen; Visiting Surgeon to the Woodend Hospital; and Assistant Surgeon to the Aberdeen Royal Infirmary.

"The Value of Persisting With Drip Blood Transfusion in Severe Prolonged Haemorrhage"—by Alan W. Cubitt, B.M., Oxon., F.R.C.S., Eng., Surgical Registrar, Middlesex Hospital, London.

"Cysticercosis as a Cause of Epilepsy in a Diabetic Indian"—by R. L. Haviland Minchin, M.D., Edin., I.M.S., Physician to the Government General Hospital, and Additional Professor of Medicine, Medical College, Madras.